



## EPA Region 7 TMDL Review

**TMDL ID:** MO\_3168                      **Waterbody ID:** MO\_3168  
**Waterbody Name:** CHAT CREEK (DOUGER BRANCH)  
**Tributary:**  
**Pollutant:** ZINC  
**State:** MO                                      **HUC:** 11070207  
**BASIN:** SPRING RIVER  
**Submittal Date:** 8/11/2006  
**Approved:** Yes

### Submittal Letter

*State submittal letter indicates final TMDL(s) for specific pollutant(s)/water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act.*

Missouri submitted this TMDL in a letter dated August 4, 2006 and received by EPA August 11, 2006.

### Water Quality Standards Attainment

*The water body's loading capacity for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.*

The targeted pollutant is the pollutant exceeding the WQS. The target is given as a load duration curve covering all probabilities of flow. Attaining the TMDL will result in the attainment of WQS.

### Numeric Target(s)

*Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.*

#### Beneficial uses:

- " Livestock and Wildlife Watering
- " Protection of Warm Water Aquatic Life
- " Protection of Human Health associated with Fish Consumption
- " Whole Body Contact Recreation - Category B.

The impaired use is warm water aquatic life.

The formulas for zinc criteria are shown below:

Acute:  $e(0.8473 \cdot \ln(\text{Hardness}) + 0.884211) \cdot 0.978 = \text{ug/L of Dissolved zinc}$

Chronic:  $e(0.8473 \cdot \ln(\text{Hardness}) + 0.785271) \cdot 0.986 = \text{ug/L of Dissolved zinc}$

Dissolved zinc criterion corresponding to a 141 mg/L hardness is 143 ug/L.

### Numeric Target(s) and Pollutant(s) of concern

*An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.*

The linkage between targets and standards attainment are direct. There are numeric criteria for acute and chronic zinc.

The modeling approach consisted of creating a load duration curve at the outlet of the impaired segment's watershed and determining the TMDL at every flow probability. A TMDL is the product of the standard of concern (in mg/L), the expected flow at the corresponding probability (as ft<sup>3</sup>/s), and a conversion factor (5.395). The resulting load is expressed in pounds per day.

#### **Source Analysis**

*Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.*

There is one point source in the watershed, Aurora Wastewater Treatment Facility (WWTF), permit #MO-0036757 specified in the TMDL, an additional permit (MO-0131954) exists for the Baldwin Park Reclamation Project mentioned in the TMDL. Nonpoint sources identified are runoff and mine seepage.

It appears all sources have been identified.

#### **Allocation**

*Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.*

Allocations are based on a load duration curve over the range of flow in the stream. At base flow the allocations will require reductions of 28% in WLA and 72% in LA.

#### **WLA Comment**

WLA is set at 2.39 pounds per day for the Aurora WWTF (MO-0036757). Though not specifically assigned the reclamation project permit (MO-0131954) requires a storm water pollution prevention plan and monitoring to ensure attainment of WQS.

#### **LA Comment**

The LA is set at the TMDL - WLA.

#### **Margin of Safety**

*Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.*

The margin of safety is implicit. The conservative assumptions are the use of the 25th percentile of hardness to determine the numeric criterion and the watershed wide population of hardness measurements used to calculate the 25th percentile.

#### **Seasonal Variation and Critical Conditions**

*Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).*

The submittal addresses seepage of the pollutant at low flow. There are no specific data from high flow periods, however, the load duration curve addresses load at all flows.

**Public Participation**

*Submittal describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).*

Public notice ran from April 28, 2006 through May 28, 2006. The announcement was sent to the Missouri Clean Water Commission, the Water Quality Coordinating Committee, Aurora WWTF, Lawrence County Head Commissioner, Lawrence County Soil and Water Conservation District, the Aurora Parks and Recreation Department, 43 Stream Team volunteers in the county, and the two legislators representing Lawrence County. Also, the notice, the Douger Branch Information Sheet and this document are posted on the department Web site, making them available to anyone with access to the Web. Comments were received and this document adjusted as appropriate. The comments have been placed in the Douger Branch docket [file] along with the department's response and any other documentation.

**Monitoring Plan for TMDL(s) Under Phased Approach**

*The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).*

The department conducts annual ambient water quality monitoring on Douger Branch. This monitoring is ongoing. In addition, a sediment study is scheduled for 2006. Also, monitoring of metals levels is built into the Brownfields project. If post-implementation monitoring reveals that WQS are still not being met, this TMDL will be re-opened and re-evaluated.

**Reasonable assurance**

*Reasonable assurance only applies when reductions in nonpoint source loading is required to meet the prescribed waste load allocations.*

Reasonable assurances are not required; the WLA assigned in the TMDL is set at the numeric criterion for the listed pollutant.